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09/966,354	09/27/2001	Rumo Satake	07977/285001/US5238	3893

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EXAMINER
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LEFLORE, LAUREL E

ART UNIT	PAPER NUMBER
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2673

DATE MAILED: 01/05/2004

7

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/966,354

Applicant(s)

SATAKE, RUMO

Examiner

Laurel E LeFlore

Art Unit

2673

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,3,4,6-10,15, 16, 18-23,25-27 and 29 is/are allowed.
- 6) ☒ Claim(s) 2,5,11-14,17,24 and 28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities: On page 10, lines 19-20, and again on page 18, line 18, "i is an integer of 1 to n, and j is an integer of 1 to m" should be "i is an integer of 1 to m, and j is an integer of 1 to n". Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claims 11-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The recitation of the claim 11, "a first means for detecting pixel TFTs connected to the same signal line and displaying the same gray scale" is not clear. Displaying the same gray scale of what? It is not clear what is displayed the same gray scale.

Claims 12-14 are rejected because they depend on rejected claim 11.

### *Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

Art Unit: 2673

applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 2, 5, and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Nakajima et al. 6,486,864 B1.

In regard to claim 2, Nakajima discloses a method of driving a liquid crystal display device comprising a step of simultaneously applying a potential of signal voltage to a plurality of pixel electrodes of a plurality of pixels displaying a same grey-scale. See column 13, lines 55-62, in reference to figure 5, disclosing, "A voltage corresponding to an image signal for the row...is applied as a source voltage  $V_s$  to the source electrode 22 during the assist signal writing scanning period and the image signal writing scanning period. A plurality of such image signals are applied sequentially. A common voltage  $V_c$  is applied to the common electrode 25." Further see column 15, lines 45-49, disclosing, "The settings of the source voltage  $V_s$  and the common voltage  $V_c$ ...may be appropriately set for each of the gray-scale levels to be provided for the image signal." Also see column 13, line 18, disclosing that such processes are to be applied to a liquid crystal display.

6. In regard to claim 5, Nakajima discloses a method of driving a liquid crystal display device wherein a first light emission color, a second light emission color, and a third light emission color are intermittently incident upon the liquid crystal display device. See column 13, lines 17-19, disclosing that the invention is "applied to a liquid crystal display device based on the field sequential color

method". Also see column 2, lines 33-36, disclosing that in the field sequential color method, "the output color of the light source is switched among red, blue and green while an image corresponding to each output color is synchronously displayed."

7. In regard to claim 24, Nakajima discloses that the liquid crystal display device is driven in a field sequential system. See rejection of claim 5.

***Claim Rejections - 35 USC § 103***

8. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki et al. 5,774,100 in view of Ozawa 2001/0017610 A1.

In regard to claim 11, Aoki discloses LCD device comprising: a first means for detecting pixel TFT's connected to the same signal line (see fig. 8B; column 6, lines 46-48, 62-column 7, line 4; column 9, lines 3-24). Aoki did not expressly detail displaying the same gray-scale; a second means and selecting a signal line and scanning line connected to the TFT. However, the patent of Ozawa is cited to teach that is is well known for LCD device to display the same gray-scale (see page 2, paragraphs [0020] and [0022]; pages 2-3, paragraph [0023]; as best understood); a second means for simultaneously applying a potential of a signal voltage to pixel electrodes of the pixel TFT's (pages 1-2, paragraph [0014]; page 2, paragraph [0020]).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to have been motivated to incorporate the method of displaying the same gray-scale and simultaneously apply a potential of

a signal voltage to pixel electrodes as taught by Ozawa into the device of Aoki et al. because this will allow reduction of power consumption of Aoki's display device.

9. In regard to claim 12, Ozawa clearly teaches the second means for selecting the signal line and the scanning line of the pixel TFT (see page 2, paragraphs [0020], [0021]; page 3, paragraph [0024]).
10. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki et al. in view of Ozawa as applied to claims 11 and 12 above, and further in view of Koyama et al. 6,177,920 B1.

In regard to claims 13 and 14, Aoki as modified with Ozawa teach means for selecting a signal line and scanning line but has failed to teach that the means for selecting the scanning and the signal line has an address decoder. Koyama et al. clearly states that it is conventional to have an address decoder to select a signal line and a scanning line (see fig. 3, element 301; figure 13, element 1303; also see column 3, lines 19-22, 28-32; column 5, lines 35-37; column 7, lines 52-57; column 9, lines 44-52).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the address decoder of Koyama et al. in the display driving system of Aoki et al., since this will provide an excellent display which can be obtained with an improved yield (column 5, lines 42-43).

11. Claims 17 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki et al. in view of Ozawa as applied to claims 11 and 12 above, and further in view of Nakajima et al. 6,486,864 B1.

In regard to claims 17 and 28, Aoki et al. in view of Ozawa discloses an invention similar to that which is claimed in claims 17 and 28. See rejections of claims 11-14 for similarities. Aoki et al. in view of Ozawa does not disclose that the liquid crystal display is driven in a field sequential system wherein light sources are composed of a first, second and third light emission color.

Nakajima discloses a method of driving a liquid crystal display device wherein a first light emission color, a second light emission color, and a third light emission color are intermittently incident upon the liquid crystal display device. See column 13, lines 17-19, disclosing that the invention is "applied to a liquid crystal display device based on the field sequential color method". Also see column 2, lines 33-36, disclosing that in the field sequential color method, "the output color of the light source is switched among red, blue and green while an image corresponding to each output color is synchronously displayed."

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the liquid crystal display of Aoki et al. in view of Ozawa by driving it in a field sequential system wherein light sources are composed of a first, second and third light emission color, as in the teaching of Nakajima et al. One would have been motivated to make such a change based on the teaching of Nakajima et al. that such a driving method "produces a color

display by using a black and white liquid crystal panel" (see column 2, lines 30-31). Also, such a driving method has been used before and is a conventional way of driving a liquid crystal display.

***Allowable Subject Matter***

**12.** Claims 1, 3, 4, 6-10, 15, 16, 18-23, 25-27 and 29 are allowed.

**13.** The following is a statement of reasons for the indication of allowable subject matter: The cited prior art has failed to teach applicant's claimed invention, in which, "a response time of liquid crystal when a voltage value is changed from the first signal voltage to the second signal voltage is calculated, and in an order from a pixel in which the calculated response time of liquid crystal is long, the potential of the second signal voltage is applied to the pixel electrode of the pixel in the second sub-frame period"; "applying a potential of a first signal voltage to the first and second pixel electrode and applying a potential of a second signal voltage to the second pixel electrode, wherein a difference between an absolute value of the first signal voltage and the second signal voltage is larger than 0 volt and smaller than 0.5 volt"; and deciding an order of applying the second signal voltages to the plurality of pixel electrodes in accordance with a voltage difference between the first and second signal voltages of the corresponding pixel electrodes."

***Conclusion***

**14.** The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bolotski et al. 2003/0043093 A1 discloses a transition voltage used in a field sequential method of driving an LCD.

Huston et al. 2001/0043177 A1 discloses a field sequential method of driving an LCD in which voltage comparators are associated with each pixel.


Iba 6,473,117 B1 discloses a field sequential method of driving an LCD in which sub-frame periods have different lengths.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laurel E LeFlore whose telephone number is (703) 305-8627. The examiner can normally be reached on Monday-Friday 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on (703) 305-3885. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

LEL

  
Amare Mengistu  
Primary Examiner